

09/839,643 KEREN ET AL.

**REMARKS**

Entry of the claims set forth herein is respectfully requested.

Should there be any questions concerning this application, the undersigned may be contacted by telephone at (215) 738-5925.

Respectfully submitted,

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I hereby certify this document  
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Marked-Up version Showing Changes Made in the Claims

1. (Twice Amended) Chronic implant apparatus for decreasing pressure in a first portion of a vessel of a cardiac structure of a patient comprising a shunt implanted in a puncture in a septum in the cardiac structure, whereby a volume of blood sufficient to reduce pressure in said first portion is released flows across said septum.
2. (Twice Amended) The apparatus of claim 1, wherein the first portion comprises the left ventricle and said pressure is the end diastolic pressure in a patient heart, wherein said shunt is implanted in a septum defining the left ventricle, and wherein the shunt communicates with the left ventricle, whereby a small of blood is released flows across the septum from the left ventricle to reduce the end diastolic pressure.
3. (Original Claim) The apparatus of claim 2, wherein the shunt comprises a passive check-valve that allows flow when a pressure differential between the left ventricle and another chamber of a heart above a threshold pressure, whereby shunting is prevented during left ventricular systole
- C 4. (Original Claim) The apparatus of claim 2, wherein the shunt comprises a passive check-valve that allows flow when a pressure differential between the left ventricle and another chamber of a heart is between a lower threshold and a higher threshold, whereby shunting is prevented during left ventricular systole.
- X 5. (Twice Amended) Apparatus for decreasing pressure in a left ventricle of a patient comprising a shunt implanted in a septum communicating with an area outside said first portion the left ventricle, whereby a volume of blood sufficient to reduce end diastolic pressure in a patient flows through the shunt, wherein the shunt comprises a semi-passive check-valve selectively activated by an external signal and communicates with to permit flow from the left ventricle sufficient to reduce the end diastolic pressure.
- X 6. (Original Claim) The apparatus of claim 5, wherein an intra-corporeal electrical battery generates said signal.
- X 7. (Original Claim) The apparatus of claim 5, wherein signal is generated by an externally coupled energy source.
- X 8. (Original Claim) The apparatus of claim 5, further comprising a pump in fluid communication with the shunt and having an input connected to the left ventricle and an output connected to a volume of lower pressure.
9. (Original Claim) The apparatus of claim 2, comprising a tubular element having two ends and a tissue affixation element disposed at each of said ends.
10. (Amended) The apparatus of claim 8 9, wherein said tubular element is comprised of

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a biologically inert non-metallic material.

11. (Twice Amended) A method of decreasing pressure in a first portion of a vessel of the cardiac structure of a patient comprising the steps of:

- ✓ (a) puncturing a vessel wall between the first portion and another portion; and  
(b) implanting a shunt communicating with an area outside said first portion, ~~whereby a volume of blood sufficient to reduce pressure in said first portion is released~~

wherein the first portion comprises the left ventricle and said pressure is the end diastolic pressure in a patient heart; an

wherein said shunt is implanted in a septum defining the left ventricle and communicates with the left ventricle,  
whereby a volume of blood is released from the left ventricle sufficient to reduce the end diastolic pressure.

C<sup>1</sup> cont. ✕ 12. (Cancelled) ~~The method of claim 11, wherein the first portion comprises the left ventricle and said pressure is the end diastolic pressure in a patient heart, wherein said shunt communicates with the left ventricle, whereby a small volume of blood is released from the left ventricle to reduce the end diastolic pressure.~~

✓ 13. (Amended) The method of claim 12 11, further comprising the step of selectively permitting flow when a pressure differential between the left ventricle and another chamber of a heart above a threshold pressure, whereby shunting is prevented during left ventricular systole

✓ 14. (Amended) The method of claim 12 11, further comprising the step of selectively permitting flow when a pressure differential between the left ventricle and another chamber of a heart is between a lower threshold and a higher threshold, whereby shunting is prevented during left ventricular systole

✕ 15. (Original Claim) A method of decreasing end diastolic pressure in a left ventricle of a cardiac structure of a patient comprising the step of; further comprising the step of implanting a shunt communicating with the left ventricle and an area outside the left ventricle whereby a volume of blood is released from the left ventricle sufficient to reduce end diastolic pressure is released, and actuating a semi-passive check-valve by an external signal.

✕ 16. (Original Claim) The method of claim 15, further comprising the step of generating said signal with an intra-corporeal electrical battery.

✕ 17. (Original Claim) The method of claim 15, further comprising the step of generating said signal with an externally coupled energy source.

✕ 18. (Original Claim) The method of claim 15, further comprising the step of activating a

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pump in fluid communication with the shunt and having an input connected to the left ventricle and an output connected to a volume of lower pressure.

C<sup>1</sup>  
cont. X 19. (Original Claim) The method of claim 15, further comprising the step of implanting said shunt, said implanting step comprising the step of deploying a tubular element having two ends and a tissue affixation element disposed at each of said ends via a catheter.

X 20. (Original Claim) The method of claim 19, wherein said tissue fixation element is a shape retaining metallic material and further comprising the step of releasing the tissue fixation elements.

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